

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A process for preparing isobutene by acid-catalyzed dissociation of methyl tert-butyl ether (MTBE), said process comprising:

fractionating a feed mixture comprising MTBE, C₄- and C₅-hydrocarbons, methanol, methyl sec-butyl ether, TBA and C₄ oligomers to ~~[[give]]~~ form a product consisting of

- a) a fraction a), comprising MTBE, MSBE, TBA and C₄ oligomers, and
- b) a fraction b), comprising C₄- and C₅-hydrocarbons, MTBE and methanol,
- e) dissociating by an acid-catalyzed reaction the MTBE present in the fraction a) ~~[[into]]~~ to form a dissociation product comprising methanol and isobutene, and
- d) ~~dissociating~~ separating the dissociation product ~~from e)~~ to form a separation product c) which comprises unreacted MTBE, methanol, isobutene and low boilers and high boilers in a column into an isobutene-containing top product and a bottom product comprising the unreacted MTBE and the major part of the methanol from the dissociation, and recirculating the bottom product to the feed mixture.

Claim 2 (Previously Presented): The process as claimed in claim 1, wherein the C₄ oligomers, MSBE and TBA are separated off from the fraction a) by means of a distillation, in which they are taken off as bottom product.

Claim 3 (Previously Presented): The process as claimed in claim 1, wherein the C₄ oligomers, MSBE and TBA are separated off from the fraction a) by means of a bleed stream.

Claim 4 (Currently Amended): The process as claimed in claim 1, wherein the isobutene-containing stream, which has been separated off from the dissociation product ~~from e)~~, is fractionated in a purification column to give a bottom product consisting of pure isobutene and a top product comprising isobutene and volatile by-products.

Claim 5 (Currently Amended): The process as claimed in claim 1, wherein the isobutene-containing stream, which has been separated off from the dissociation product ~~from e)~~, is scrubbed with water, and subsequently fractionated in a purification column to give a bottom product consisting of pure isobutene and a top product comprising isobutene and volatile by-products.

Claim 6 (Presently Presented): The process as claimed in claim 4, wherein water present in the isobutene-containing stream is removed by means of a decanter.

Claim 7 (Previously Presented): The process as claimed in claim 4, wherein water present in the isobutene-containing stream is removed by means of a decanter located in the top section of the purification column.

Claim 8 (Previously Presented): The process as claimed in claim 4, wherein water present in the isobutene-containing stream is removed by means of a decanter which is located at a side offtake of the purification column.

Claim 9 (Currently Amended): The process as claimed in claim 1, wherein the dissociation ~~of step e)~~ are carried out in a reactive distillation column.

Claim 10 (Currently Amended): The process as claimed in claim 2, wherein the isobutene-containing stream, which has been separated off from the dissociation product ~~from e)~~, is fractionated in a purification column to give a bottom product consisting of pure isobutene and a top product comprising isobutene and volatile by-products.

Claim 11 (Currently Amended): The process as claimed in claim 3, wherein the isobutene-containing stream, which has been separated off from the dissociation product ~~from e)~~, is fractionated in a purification column to give a bottom product consisting of pure isobutene and a top product comprising isobutene and volatile by-products.

Claim 12 (Currently Amended): The process as claimed in claim 2, wherein the isobutene-containing stream, which has been separated off from the dissociation product ~~from e)~~, is scrubbed with water, and subsequently fractionated in a purification column to give a bottom product consisting of pure isobutene and a top product comprising isobutene and volatile by-products.

Claim 13 (Currently Amended): The process as claimed in claim 3, wherein the isobutene-containing stream, which has been separated off from the dissociation product ~~from e)~~, is scrubbed with water, and subsequently fractionated in a purification column to give a bottom product consisting of pure isobutene and a top product comprising isobutene and volatile by-products.

Claim 14 (Previously Presented): The process as claimed in claim 5, wherein water present in the isobutene-containing stream is removed by means of a decanter.

Claim 15 (Previously Presented): The process as claimed in claim 5, wherein water present in the isobutene-containing stream is removed by means of a decanter located in the top section of the purification column.

Claim 16 (Previously Presented): The process as claimed in claim 6, wherein the water present in the isobutene-containing stream is removed by means of a decanter located in the top section of the purification column.

Claim 17 (Previously Presented): The process as claimed in claim 5, wherein water present in the isobutene-containing stream is removed by means of a decanter which is located at a side offtake of the purification column.

Claim 18 (Previously Presented): The process as claimed in claim 6, wherein the water present in the isobutene-containing stream is removed by means of a decanter which is located at a side offtake of the purification column.

Claim 19 (Previously Presented): The process as claimed in claim 7, wherein the water present in the isobutene-containing stream is removed by means of a decanter which is located at a side offtake of the purification column.

Claim 20 (Currently Amended): The process as claimed in claim 2, wherein the dissociation of ~~step e)~~ and the separation of the isobutene in ~~step d)~~ from the MTBE present in fraction a) are carried out in a reaction distillation column.